

IN THE CLAIMS

Please find below a listing of all of the pending claims. The status of each claim is set forth in parentheses. This listing will replace all prior versions, and listings, of claims in the present application.

1. (Currently amended) A method of policing resources in a computing utility facility, comprising:

a processor intercepting an advance request for resources from an application admitted to access a pool of resources associated with the computing utility facility and prior to utilization of the pool of resources to execute the application;

acquiring an entitlement profile associated with the application to determine if the application is entitled to requested resources over a time period;

identifying an entitlement value and corresponding sliding window of the time period from the entitlement profile, wherein the entitlement profile associated with the application describes burstiness of the application over the time period, and the burstiness includes a measure of the application's expected bursts for resources;

determining if the request for resources exceeds the entitlement value associated with the sliding window; [[and]]

indicating application entitlement to the requested resources in response to the determining and if the request is excessive, including a throttling of the requested resources when the application is not entitled to the additional resources in accordance with the entitlement profile;

acquiring additional sliding windows and corresponding additional entitlement values to determine if the request for resources exceeds the additional entitlement values; and indicating that the application is not entitled to the requested resources when the request exceeds the additional entitlement values.

2. (Canceled).
3. (Canceled).
4. (Original) The method of claim 1 wherein a burst loading factor associated with each sliding window corresponds to the burstiness of the application and identifies a portion of an aggregate entitlement to the resources available to fulfill the request.
5. (Original) The method of claim 4 wherein a larger burst loading factor is associated with more bursty applications that may need resources more rapidly compared with a smaller burst loading factor is associated with applications that may not need resources as rapidly.
6. (Original) The method of claim 1 wherein the entitlement value is derived from historical trace information collected while the application is using resources.
7. (Original) The method of claim 1 wherein the burst loading factor is derived from the historical trace information collected while the application is using resources.

8. (Currently amended) The method of claim ~~[[3]]~~1 wherein the resource usage is determined according to an estimated probability mass function.
9. (Original) The method of claim 4 wherein the estimated probability mass function further includes a confidence interval corresponding to a sample size used for determining the estimated probability mass function.
10. (Original) The method of claim 1 wherein the entitlement value operates as a metric for determining whether an application is entitled to the requested resources.
11. (Original) The method of claim 10 wherein the entitlement value for an application is proportional to the burstiness of the application in view of resource usage derived from historical trace data.
12. (Original) The method of claim 1 wherein determining if the request for resources exceeds the entitlement value further depends on a confidence interval associated with the entitlement value and the number of sample values used to identify the entitlement value.
13. (Canceled).
14. (Original) The method of claim 1 wherein indicating application entitlement includes clawing back resources already allocated to the application when the application has exceeded a time limit for using the allocated resources.

15. (Currently amended) An apparatus for policing resources in a computing utility facility, comprising:

a processor capable of executing instructions;

a memory containing instructions when executed cause the processor to;

intercept an advance request for resources from an application admitted to access a pool of resources associated with the computing utility facility and prior to utilization of the pool of resources to execute the application,

acquire an entitlement profile associated with the application to determine if application is entitled to requested resources over a time period,

identify an entitlement value and corresponding sliding window of the time period from the entitlement profile, wherein the entitlement profile associated with the application describes burstiness of the application over the time period, and the burstiness includes a measure of the application's expected bursts for resources,

determine if the request for resources exceeds the entitlement value associated with the sliding window; [[and]]

indicate application entitlement to the request for resources in response to the determining and if the request is excessive including a throttling of the requested resources when the application is not entitled to the additional resources in accordance with the entitlement profile;

acquire additional sliding windows and corresponding additional entitlement values to determine if the request for resources exceeds the additional entitlement values; and

indicate that the application is not entitled to the requested resources when the request exceeds the additional entitlement values.

16. (Canceled).

17. (Canceled).

18. (Original) The apparatus of claim 15 wherein a burst loading factor associated with each sliding window corresponds to the burstiness of the application and identifies a portion of an aggregate entitlement to the resources available to fulfill the request.

19. (Original) The apparatus of claim 18 wherein a larger burst loading factor is associated with more bursty applications that may need resources more rapidly compared with a smaller burst loading factor is associated with applications that may not need resources as rapidly.

20. (Original) The apparatus of claim 15 wherein the entitlement value is derived from historical trace information collected while the application is using resources.

21. (Original) The apparatus of claim 15 wherein the burst loading factor is derived from the historical trace information collected while the application is using resources.

22. (Currently amended) The apparatus of claim ~~[[17]]~~18 wherein the resource usage is determined according to an estimated probability mass function.
23. (Original) The apparatus of claim 18 wherein the estimated probability mass function further includes a confidence interval corresponding to a sample size used for determining the estimated probability mass function.
24. (Original) The apparatus of claim 15 wherein the entitlement value operates as a metric for determining whether an application is entitled to the requested resources.
25. (Original) The apparatus of claim 24 wherein the entitlement value for an application is proportional to the burstiness of the application in view of resource usage derived from historical trace data.
26. (Original) The apparatus of claim 15 wherein determining if the request for resources exceeds the entitlement value further depends on a confidence interval associated with the entitlement value and the number of sample values used to identify the entitlement value.
27. (Canceled).
28. (Original) The apparatus of claim 15 wherein indicating application entitlement further includes instructions when executed that claw back resources already allocated to the application when the application has exceeded a time limit for using the allocated resources.

29. (Currently amended) A computer program product for policing resources in a computing utility facility, comprising instructions operable to cause a programmable processor to:

intercept an advance request for resources from an application admitted to access a pool of resources associated with the computing utility facility and prior to utilization of the pool of resources to execute the application;

acquire an entitlement profile associated with the application to determine if application is entitled to requested resources over a time period;

identify an entitlement value and corresponding sliding window of the time period from the entitlement profile, wherein the entitlement profile associated with the application describes burstiness of the application over the time period, and the burstiness includes a measure of the application's expected bursts for resources;

determine if the request for resources exceeds the entitlement value associated with the sliding window; [[and]]

indicate application entitlement to the request for resources in response to the determining and if the request is excessive including a throttling of the requested resources when the application is not entitled to the additional resources in accordance with the entitlement profile;

acquire additional sliding windows and corresponding additional entitlement values to determine if the request for resources exceeds at the additional entitlement values; and

indicate that the application is not entitled to the requested resources when the request exceeds the additional entitlement values.

30. (Currently amended) An apparatus for policing resources in a computing utility facility, comprising:

means for intercepting an advance request for resources from an application admitted to access a pool of resources associated with the computing utility facility and prior to utilization of the pool of resources to execute the application;

means for acquiring an entitlement profile associated with the application to determine if application is entitled to requested resources over a time period;

means for identifying an entitlement value and corresponding sliding window of the time period from the entitlement profile, wherein the entitlement profile associated with the application describes burstiness of the application over the time period, and the burstiness includes a measure of the application's expected bursts for resources;

means for determining if the request for resources exceeds the entitlement value associated with the sliding window; [[and]]

means for indicating application entitlement to the request for resources in response to the determining and if the request is excessive including a throttling of the requested resources when the application is not entitled to the additional resources in accordance with the entitlement profile;

means for acquiring additional sliding windows and corresponding additional entitlement values to determine if the request for resources exceeds the additional entitlement values; and

means for indicating that the application is not entitled to the requested resources when the request exceeds the additional entitlement values.